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Rev. Charles Pritchard, President, in the Chair.

Radiant Point of the November Meteors, 1866.

By A. S. Herschel, B.A.

The importance of attempting to fix the apparent direction of motion of the meteoric bodies seen in England on the morning of the 14th of November, 1866, is best proved by the remarkable coincidence between the observations taken with this object in view, at a number of widely separated places,—each station giving an independent result, and all conspiring to place the Radiant Point near a particular spot of the ecliptic, termed by Herrick the "tangential region" of the ecliptic, and by Mr. Pritchard "the apex of the Earth's way," or the point towards which the Earth was moving at the moment. The longitude of this point of the ecliptic at the time of the maximum display (Nov. 13, 13^h 15^m G.M.T.) was 142° 10′·9, or 89° 17′·5 behind the longitude of the Sun.

For the observations in the following list I am mainly indebted to correspondents furnishing me with results on behalf of the Luminous Meteor Committee of the British As-

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sociation. The records of three other observers are included; the notes at the end of the table refer the reader to the original sources from which these observations were derived.

A few words of explanation will suffice to indicate the method of procedure followed in special cases, by which the data were arranged in their present tabular form.

In Nos. 2, 3, 5, 6, 8, 9, 10, 11, the place of the radiant point is generally recorded by the intersection of certain alignments between particular stars in the constellation *Leo.* The corresponding right ascensions and declinations, in these cases, were taken out *from the intersection of straight lines* in the figure of the constellation *Leo*, contained in the Useful Knowledge Society's Atlas of six large charts, on the gnomonic projection, edited by the late Sir John Lubbock, Bart. These maps are ruled with meridians and with circles of declination at intervals of one degree, whence the radiant point thus indicated might be taken out correctly within 5′ of arc.* The places being thus found, and all of them being very near together, 22′ was added to the right ascensions, as a general correction, and 7′ was subtracted from the declinations for precession, since the date (1840·0) of the Atlas.

Among the rest (Nos. 1, 7, 12, 13, 14, 15), with one exception (No. 4), the place of the radiant point is given originally in hours, degrees, and minutes of right ascension and declination. Sir John Herschel gives the ecliptic longitude and latitude in degrees and minutes of a degree, from which the apparent right ascension and declination of the Radiant Point was calculated. These values, and those obtained from the former alineations, are together entered in the fourth and fifth columns of the table, with the connected place of observation, the observer's name, and reference number, in the previous columns.

The ecliptic longitude and latitude of No. 12, deduced from the place of the radiant point observed at Manchester, is that calculated by Mr. J. Baxendell, in his interesting account of the phenomenon, to which reference is made at the end of this paper. But, with the exception of the observations of Sir J. Herschel and Mr. Baxendell (Nos. 4 and 12), the whole of the remaining longitudes and latitudes contained in the last two columns of the table, are freshly computed from the observed right ascensions and declinations of the radiant points, assuming 23° 28′ as the obliquity of the ecliptic.

It deserves to be noticed that of all the observations, Nos. 9, 10, and 11, are the most discordant, in which the position of

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* The place of the radiant point assigned by Mr. Pritchard ("the least bit above *x Leonis* of Bode") has, necessarily, been somewhat arbitrarily assumed, in placing the observation among the list, as 1° from *x Leonis*, towards *μ Leonis.*

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the radiant point is stated to have been observed at or very near to the stars ζ and γ of the constellation *Leo*. The remaining twelve observed places are situated within an area bounded by a circle of less than 3° in angular diameter. The centre of the circle is in latitude $+10^\circ\ 27'\cdot1$, and longitude $+142^\circ\ 34'\cdot9$, a position $0^\circ\ 24'$, or less than half a degree of longitude, in advance of the longitude of "the apex of the Earth's way."

List of the Observed Places of the Radiant Point of the Meteors, 1866, *November* 13.

Ref. No.	Observer.	Place of Observation.	Position of the Radiant Point. R.A.		N. Decl.		Long.		N. Lat.	
			°	′	°	′	°	′		′
1	T. Crumplen	London	147	0	24	0	141	6	10	5
2	H. Macleod	London	148	57	24	18	142	41	10	58
3	F. C. Penrose	Wimbledon	148	44	22	33	143	7	9	16
4	J.F.W. Herschel	Hawkhurst	148	9	23	48	142	10	10	15
5	C. Pritchard	Freshwater	148	17	23	18	142	28	9	49
6	G. F. Burder	Clifton	150	40	22	45	144	45	10	4
7	W. H. Wood	Birmingham	148	0	25	0	141	37	11	19
8	D. Smith	Birmingham	149	12	22	37	143	31	9	28
9	E. J. Lowe	Beeston Observatory	147	17	23	15	141	36	9	27
10	S. H. Miller	Wisbeach	152	42	22	19	146	41	10	20
11	R. P. Greg	Manchester	152	18	24	6	145	40	11	52
12	J. Baxendell	Manchester	149	33	22	57·5	143	41	9	54·5
13	T.W. Backhouse	Sunderland	149	7·5	23	15	143	12	10	3
14	R. Grant	Glasgow Observatory	148	33	22	30	142	58	9	9
15	A. S. Herschel	Glasgow Observatory	149	0	24	0	142	51	10	42

References.

No. 6. The *Times*, Nov. 15th, 1866.

No. 8. The *Birmingham Daily Post*, Nov. 15th, 1866, (reprinted for private circulation.)

No. 12. *Proc. Manch. Lit. and Phil. Society*, Nov. 27th, 1866, vol. vi., p. 31.

On the Meteoric Shower of 1866, *Nov.* 13–14.

By Sir J. F. W. Herschel, Bart.

During the superb display of meteors on the night of the 13th inst. my attention was particularly directed to the determination of the exact situation in the heavens of the Radiant